

I I T A

INSTITUTE FOR INFORMATION TECHNOLOGY APPLICATIONS

US AIR FORCE ACADEMY



# Institute for Information Technology Applications (IITA) Research Process

1 October 2004

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## **Introduction**

### **Purpose**

The Institute for Information Technology Applications (IITA) coordinates and focuses multidisciplinary teams on information technology application research for the Department of Defense (DoD), the Air Force and the US Air Force Academy (USAFA). Located at the USAF Academy in Colorado Springs, Colorado, IITA is an independent research center supported by the Assistant Secretary of the Air Force for Acquisition (SAF/AQ), the Air Force Office of Scientific Research (AFOSR), and USAFA. The Institute helps to develop research topics, selects researchers, administers sponsored research, publicizes results, and hosts conferences and workshops that facilitate the dissemination of research findings to a wide range of private and government organizations. In addition, IITA seeks to help prepare USAFA graduates for a high technology Air Force.

IITA collaborates with numerous outside agencies in supporting applied research efforts. These outside agencies include Office of the Secretary of Defense, the Assistant Secretary for Acquisition, HQ USAF, HQ United States Air Force Reserve (USAFR), Air Education and Training Command, Air Force Space Command, Air Force Communications Agency, Air Force Research Laboratory, Air Force Office of Scientific Research, Air Force Safety Center, Bird Aircraft Strike Hazard Team, National Science Foundation, and the Department of Homeland Security. From its inception, IITA has offered several advantages to our sponsors. These advantages include providing maximum return for scarce research dollars, providing an objective and multidisciplinary perspective, tapping the skills and knowledge within the military academic community, and acting as a networking locus to bring together people and ideas.

The field of information technology is always under change. It is pre-paradigmatic as a research domain. As a result, IITA recognizes the need to sponsor a variety of non-traditional research. Although we have identified a number of topics and fields in which we seek to do applied research, scholars and sponsors are also encouraged to submit proposals on unusual or novel topics that require non-traditional methods of inquiry.

### **Organization**

Figure 1 illustrates IITA's organization. The Director provides strategic guidance, while the Managing Director executes the day-to-day mission by supporting multidisciplinary research efforts within the DoD, the Air Force, and the Air Force Academy. The Director of Reserve Research provides leadership and guidance to Air Force reserve forces seeking to leverage IT applications. The Director of Educational Research supports research efforts in academic and training areas of interest to the DoD, the Air Force and the Air Force Academy. The Director of Publications and Conferences manages and coordinates all aspects of IITA sponsored conferences and publishes research papers in a variety of formats. The Laboratory Director provides technical management and leadership, and coordinates usage of laboratory assets. The Managing Director, the

Director of Reserve Research, the Director of Educational Research, and the Director of Publications and Conferences form a core group of research advisors.

## IITA Organizational Structure

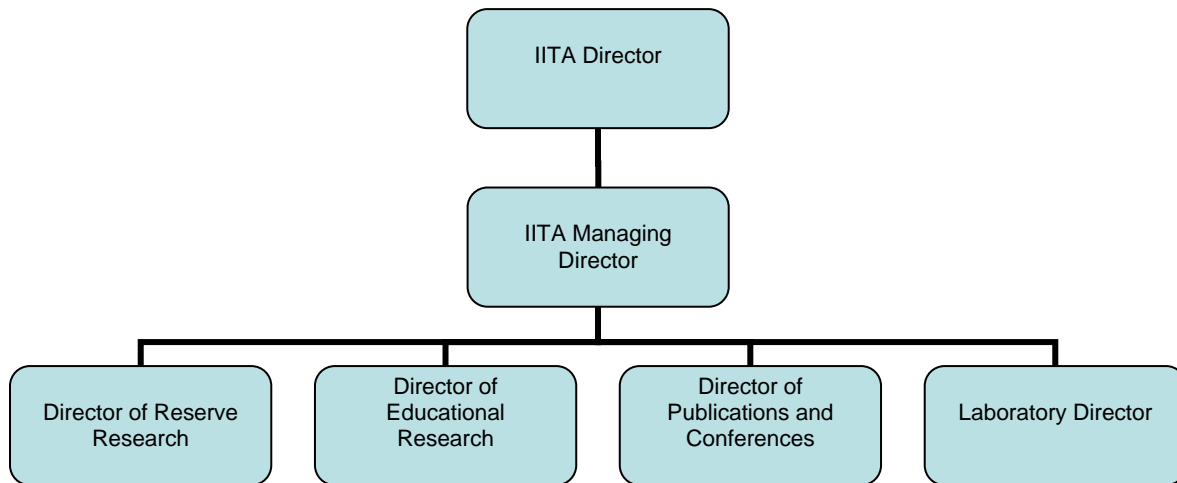


Figure 1

## IITA Research Process

### Eligibility

Subject to funds availability, IITA provides research funding for all active and reserve military members and DoD civilian personnel. IITA also provides research funding for all active and reserve military and civilian faculty, staff, and students at the military academies, intermediate service schools, senior service schools, military degree-granting institutions and civilian accredited academic institutions. IITA is also interested in matching reserve expertise with project requirements to complement IITA's active duty research initiatives.

### Research Teams

IITA highly encourages multidisciplinary collaboration and collaboration involving cadet researchers. Using cadets as human subjects for the research project is not the same as having them actively participate in the carrying out of the research itself. The use of cadets as human subjects requires the prior approval of the USAFA Institutional Review Board (IRB). For information on the USAFA IRB and to determine if you need to apply, please see their web site at <http://www.usafa.af.mil/irb>.

## Research Areas

IITA seeks interested researchers from all disciplines to conduct research in the following broad area domains:

- Bio-IT Technologies
- Command and Control Tools
  - UAVs
  - Vehicle Locators
  - Personnel Locators
- Communication Systems
  - Secure Communications
  - Secure Data
  - Communication Between Military and Civilian Authorities for Crisis Response
- DoD Architecture Framework
- Electronic Digitization Applications
- Fully Integrated Logistics Support
- Geospatial Information Technologies
- Human-IT Machine Interface
- Information Policy Issues
- Information Warfare
- IT-Enabled Management Concepts
- Knowledge Management
  - Distributed ELearning Systems
  - Classroom Interaction Systems
  - Virtual Human/Agent Technologies
  - Latent Semantic Analysis
- Modeling and Simulation
  - Terrorism
- Nanotechnology
- Sensor Reflective Technology
- Wireless Applications

A significant fraction of IITA support is devoted to learning technologies. Current areas of support cover a range of activities and include web-based platforms to facilitate Just-in Time Teaching; hardware and software systems that create collaborative or shared workspaces in classrooms; molecular docking simulation for biochemistry majors to screen for biochemical threat compounds; the use of virtual human and pedagogical agent technology to aid in learning; the assessment and enhancement of complex reasoning and leadership skills; and distributed or online learning. Grants to USAFA from the National Science Foundation also directly support IITA research these areas. The Institute welcomes proposals with classroom applications in any of the above areas or in IT-enhanced instructional activities.

## **Air Force Reserve Research Procedures**

Research opportunities are open to all categories of reservists. The IITA has a limited Man-Day budget to support research and travel, see [AFI 36-2619](#). When you submit your research proposal, please include an estimated number of Reserve Man-Days required in the budget section of the proposal. Once approved, an [AF Form 49](#) must be submitted to the Director of Reserve Research for fund cite validation. The Form 49 will then be turned into the reservist's unit of assignment to cut the orders. The Director of Reserve Research is the certifying official. In addition, telecommuting is an authorized means of conducting research for those reservists not within the local area, see [AFI 36-8002](#). A telecommuting contract will be drafted by the researcher and approved by the Director of Reserve Research.

## **Collaboration With Other Agencies**

Researchers are highly encouraged to collaborate with other agencies during the proposal development phase and during the actual research. Other agencies may be pursuing similar IT initiatives and experience has shown that collaboration early in the proposal development phase and during the actual research often yields superior research.

## **Funding**

IITA funding is designed to assist researchers conducting applications research on their selected topic. Funding can be spent for hardware and software purchases, contractor support, travel expenses to collect data and present results at conferences, and related costs. IITA awards grants with dollar values between \$3,000 and \$38,000 with the average being \$10,000. However, projects of any amount will be considered.

## **Exploratory Funding**

There are instances where researchers may not have extensive experience with technologies they wish to research, or need to gather information to determine if a topic merits research. IITA does provide small proposal development grants on a limited basis as seed money for purposes of formulating research questions and protocols. Researchers are expected to use this money to decide if they wish to pursue additional research in the area. The deliverable for these grants would be a research proposal for follow-on study or a review paper outlining why further research is unnecessary.

## **Proposal Submission Procedure**

Winning an IITA research grant is a competitive process. [Attachment 1](#) depicts the proposal submission and review process. Please submit all research proposals to the IITA Managing Director. When we receive your proposal, we follow these steps:

- Your proposal is logged into the IITA proposal tracking system and it is sent to the Director of Reserve Research, the Director of Education Research and the Director of Publications and Conferences for an initial quality review. The purpose of this review is to ensure that your proposal is clear and sound.
- You will then be sent a formal letter advising you of the results of the initial review.

- If your proposal meets our quality review, then your project will be immediately forwarded to our Proposal Review Committee. In some cases, however, we will include suggestions to improve your proposal. In this latter case we will give you 7 days to make additional comments before we forward your proposal to our Proposal Review Committee.
- If your proposal does not meet our criteria, then we will tell you that it does not and provide suggestions for subsequent improvement.

[Attachment 2](#) is an example of a letter advising an applicant that a submitted proposal will be forwarded to our Proposal Review Committee.

- The Proposal Review Committee is composed of one person from each of the four academic divisions at the Air Force Academy. As a result, they provide a broad perspective on research. This broad background helps IITA decide which proposals promise the most impact to DoD, the Air Force and the Air Force Academy. The Proposal Review Committee will have between seven and fourteen days to review your proposal. As appropriate, they will provide comments and make a recommendation on whether IITA should fund your research. The IITA Managing Director will consolidate all comments and forward them to the IITA Director with either a recommendation to fund or not to fund your proposal.
- The IITA Director will make the decision on funding your proposal. You will receive a formal response from IITA letting you know of the funding decision. As appropriate, we will include comments concerning your research. Assuming that we decide to fund your effort, the letter you receive will include your point of contact within IITA (called Research Advisor) and give you general instructions on how to proceed. [Attachment 3](#) is an example of an award letter.
- As your research progresses, you will be required to give us periodic updates. Feel free to give your Research Advisor updates as appropriate. Your Research Advisor will ask for an update on a monthly basis.
- When your research is finished, you will have 60-days to furnish us a report of your work. As appropriate, your report will be published on the IITA web page, in hard copy, or on CD. We encourage you to also submit your work to an appropriate peer-reviewed journal.

## **Proposal Format**

We have developed a template to help you write your proposals. Proposals should be between 5 and 15 pages long. The specific length should be commensurate with the amount of money you are requesting. We also require you to submit a breakdown of your projected expenses and a management plan. Sample templates are in [Attachment 4](#).

- **Projected Expenses.** Use the spreadsheet found in Attachment 4. Fill in the appropriate information in the “yellow” cells. If a particular section of the spreadsheet is not applicable to your research, then leave that area blank. If



you need to expand an area, insert a line at the appropriate location. Please do not fill in any data in the “red” cells; those cells are used to calculate totals.

- Management Plan. Use the [spreadsheet](#) or the [Project template](#) found in Attachment 4 to develop your management plan. Your management plan must indicate who will conduct each part of your work. (Please note: if your project involves cadets as research subjects, you must secure approval from the Institutional Review Board (IRB) before you can begin project activities). IRB approval is not required prior to proposal submission. If you have already sought approval, please attach a copy of the IRB approval letter. For information on the USAFA IRB and to determine if you need to apply, please see their web site at <http://www.usafa.af.mil/irb>. Your milestone chart needs to show your plan to complete each step of your research and must start with your initial research and conclude with publication of your finding. Multi-year projects can be broken down into quarters. One year projects must be broken down into months. Use Microsoft Excel, Microsoft Project, or an equivalent product for your milestone chart. Your management plan should be in “Gantt Chart” format as is shown in the Microsoft Project version.

## **Proposal Deadlines**

The first call for proposals takes place early in the fall semester in coordination with the call for research proposals of the Air Force Academy’s Director of Research (USAFA/DFER). Applicants wishing to be considered in the first round should submit their proposals to IITA no later than 15 September. First round selections will be notified prior to 15 November. IITA continues to consider proposals all year long. The Proposal Review Committee meets as needed to review research proposals.

## **Project Milestones and Accountability**

Once an award has been issued, it will be assigned an IITA research code and an IITA Research Advisor. Your Research Advisor will provide technical and administrative assistance and ensure compliance with appropriate DoD and AF instructions. It is extremely important that you keep your Research Advisor fully informed about the progress of your work. Your Research Advisor should be notified immediately in case of any problems that would affect the successful completion of the project as proposed.

## **Required Deliverables**

All researchers are required to submit a softcopy scholarly work reporting the full extent of their research effort and results within 60 days of the conclusion of their work.

## **Spending Your Research Dollars**

You may begin to spend IITA research funds once your award has been issued and the appropriate funding codes have been established. The principal researcher is responsible for achieving milestones, controlling grant money and completing all deliverables as outlined in the research proposal. You will have some flexibility in how you spend your research dollars, as long as the total amount you spend does not exceed the total amount you requested. All funds must be obligated by approximately 1 August of each year. The specific date is dependent on the Air Force Academy budget cutoff dates. Your

Research Advisor will let you know the specific date. In addition, all researchers must submit an annual progress report by email to their Research Advisor with the details of how much money has been spent, and plans for obligating remaining funds. This annual report update must be completed by 30 June of each fiscal year and is in addition to the monthly updates.

## **Travel**

Work with your Research Advisor for all travel. Please arrange travel at least two weeks prior to your trip. IITA will provide the researcher the TDY accounting code and it is the researcher's responsibility to make all travel arrangements to include TDY orders and all applicable reservations.

## **Hardware/Software Purchases**

Work with your Research Advisor for all hardware and software purchases. You may need to complete a Communications Support Requirements Document (CSR) for the required hardware or software. In that case, you will need to identify two procurement sources and a justification for the purchase. Forward the completed CSR to the IITA Lab Director. He will review the CSR and coordinate the procurement with the Managing Director. All hardware and software procured with IITA funds remain the property of IITA. Unless previously agreed upon during the proposal process, the hardware and software will be returned to the IITA Lab Director upon completion of the project.

## **Government Purchase Card Purchases**

Work with your Research Advisor for all Government Purchase Card (GPC) purchases. IITA will make the actual GPC purchase. At a minimum, you need to provide information about the item you wish purchased along with options for other items that will satisfy your requirement. If no other product will satisfy your requirement, then you need state that no other product is available.

## **Contract Support**

Requests for all contract support require a Statement of Work (SOW) and an AF Form 9. Forward the SOW and AF Form 9 to your Research Advisor. Your Research Advisor will coordinate your SOW and AF Form 9 with the IITA Managing Director and then apply the fund cite to the AF Form 9.

## **Publication Policies and Procedures**

All researchers are required to submit a softcopy scholarly paper to their Research Advisor reporting the full extent of their research effort and results within 60 days of the project's conclusion. The document will be reviewed for publication by IITA or if the researcher or team of collaborators wish, they may send it to another publisher. All deliverables must include an abstract of the paper and be in final form and not a draft.

## **Outside Publication**

If the researcher wishes to submit the article for outside journal publication, s/he may skip the IITA peer review publication process and proceed to submit the research report

to the selected publisher following the submission requirements outlined by the publishing house. If the report is published by an outside publisher, it may also be published by IITA with permission of the original publisher.

### **IITA Publications**

To be published by IITA, the final report must be submitted for peer review. Peer review should be accomplished with at least one person knowledgeable of the topic of the research and the Research Advisor. Subsequently, the report goes to the Director of IITA for final approval and the decision whether to publish in hard copy and/or post on the IITA web site.

### **Hard Copy**

The Director of Publications and Conferences manages the formatting, printing, and distribution processes. All manuscripts should be publication ready and not require any further editing other than to comply with IITA publication formatting style.

### **Electronic Publication**

Some publications may be distributed electronically using CDs, e-mail or posting on the IITA web site. The researcher is expected to provide an address list of intended recipients for the publication. The Director of Publications and Conferences will augment the list with additional potentially interested parties in order to provide the widest suitable dissemination.

### **Requirements for all IITA Publications**

Two copies of all IITA publications must be sent to the Cadet Library's Office of Special Collections. Researchers must provide two copies of the publication to the IITA Director of Publications and Conferences so they may be sent to the Cadet Library's Office of Special Collections.

### **IITA Web Site**

IITA maintains a web site located at <http://www.usafa.af.mil/iita>. The web site provides important information about IITA and contains templates to help researchers write their proposals. A brief listing and description of the specific pages follows.

**IITA Home:** IITA's Mission and Vision Statements.

**About IITA:** Overview of IITA.

**Contacts:** IITA contact information.

**Research Opportunities:** IITA research process, including information on eligibility, funding, potential topics, requirements, and proposal preparation forms.

**Air Force Reserve:** Information pertinent to Air Force Reservists and significant research projects conducted by Air Force Reserve personnel.

**IITA Lab:** Information about the lab, capabilities, and scheduling procedures. (Additionally, IITA has set up a secure facility for work on classified projects.

**Projects:** Description of the current (2003-2005) IITA research projects.

**Conferences:** History of IITA conferences. Current or future conference plans are added as developed and a link for conference information and online registration is provided.

**IITA Publications:** Online publications of selected IITA projects in PDF format.

**Additional References:** Other publications by IITA staff members and researchers.

The IITA web site also contains links to the Air Force Academy home page, [USAFA](#), and the [Dean of Faculty](#) home page.

IITA updates the web site frequently.

## **Conference Support**

IITA can assist researchers by hosting technical or academic conferences. The Director must approve conferences in advance. All IITA conference support must be coordinated with the Director of Publications and Conferences. The Director of Conferences and Publications can help plan the administrative details such as registration, invitations, site selection, arranging for catering and audio/visual support and provide some other administrative support. The researchers requesting assistance are responsible for developing the agenda, securing speakers, reviewing and approving the content of presentations, developing the target audience for invitations, and publishing the conference results/minutes if desired.

## **IITA Laboratory**

The IITA lab, located in Fairchild Hall Room 4J15, is designed to support research in leading edge information technologies. The lab is unique among computer labs at the Academy for three reasons. First, it provides a very fast internal network, separated from the larger Academy network. The speed of the network and its isolation permit the investigation of technologies that rely on high bandwidth networks or on projected network protocols and connection speeds. Second, network connection flexibility, a key component in the lab's design, allows for rapid reconfiguration of the laboratory to support the needs of the researcher. Third, the lab supports researcher requirements for diverse computing platforms. This feature also allows researchers to simulate the heterogeneous computing environments found in the Air Force at large.

All changes to the IITA Lab configuration require the prior coordination of the Lab Director. The lab configuration includes the physical facility layout, network connectivity, system administration support, and hardware and software installation and configuration. The Lab Director is the primary interface with the Air Force Academy's 10<sup>th</sup> Communications Squadron (10CS) for consulting services. All requests for help from the 10CS should go through the IITA Lab Director.

The IITA Lab can be used in support of classroom instruction. The principal researcher must actively coordinate the use of the lab for any reason related to cadet instruction. The researcher must provide the dates and times (approximate if unknown) and whether

cadet's homework assignments, grades or other sensitive information will be stored on the servers. This will help us to avoid scheduling conflicts and ensure that your data is properly protected.

## **IITA Research Awards**

### **Purpose**

The IITA research award recognizes research excellence in pioneering multidisciplinary approaches supporting military information superiority. This award is sponsored by IITA through USAFA/DFER.

### **Eligibility**

Individuals who have published IITA technical reports or journal articles under IITA research sponsorship during the previous twelve months are eligible for this award. Researchers who have not published, but whose work is particularly noteworthy will also be considered.

### **Process**

[Attachment 5](#) illustrates the award process. In September, IITA reviews all papers and promising research from the fiscal year to establish a list of qualified research. The suitability criteria is based on the quality of the research, its likelihood to produce clear, significant, and lasting results, the degree to which it meets educational and/or operational needs, and its suitability for Air Force acquisition. The IITA staff will then choose the three top candidate research projects, from the list of qualified research, which best fulfill the suitability criteria.

The candidate's research is submitted to the IITA Director, the head of the Civil and Environmental Engineering department (DFCE), and the head of the Department of Computer Science department (DFCS) for evaluation. A final research project is selected in conference between the IITA Director, the DFCE Department Head, and the DFCS Department Head.

### **Presentations**

The award consists of a plaque and a \$2500 research grant. The award is presented at the annual USAF Academy Research Award Ceremony normally held in November.

## How to Reach IITA

For additional information about IITA, assistance preparing a research proposal, or administrative questions about a research grant, please contact the Institute staff.

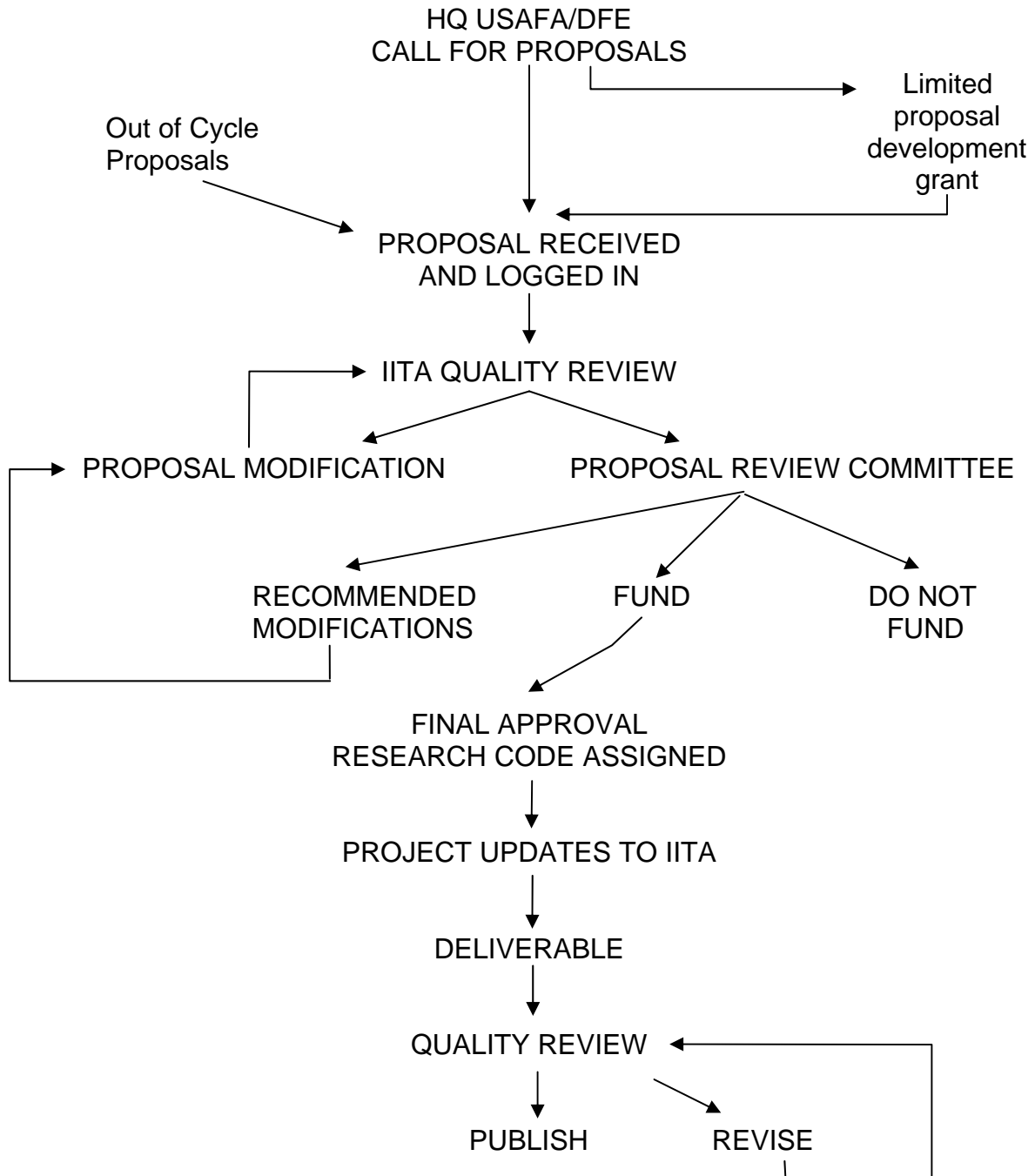
DSN: 333-  
COMM: (719) 333-

Gen (ret) James McCarthy	Director	2746
Lt Col James Harper	Managing Director	3978
Dr. Eric Hamilton	Director, Educational Research	8325
Lt Col Ellen Fiebig	Director, Reserve Research	6941
Ms. Sharon Richardson	Director, Conferences and Publications	2746
Mr. Danny Portillo	Lab Director	2553

Email addresses:

[jim.mccarthy@usafa.af.mil](mailto:jim.mccarthy@usafa.af.mil)  
[james.harper@usafa.af.mil](mailto:james.harper@usafa.af.mil)  
[eric.hamilton@usafa.af.mil](mailto:eric.hamilton@usafa.af.mil)  
[ellen.fiebig@usafa.af.mil](mailto:ellen.fiebig@usafa.af.mil)  
[sharon.richardson@usafa.af.mil](mailto:sharon.richardson@usafa.af.mil)  
[danny.portillo@usafa.af.mil](mailto:danny.portillo@usafa.af.mil)

## Attachment 1: Proposal Submission and Review Process



## Attachment 2: Sample Initial Response to Researcher

DATE

MEMORANDUM FOR

FROM: HQ USAFA/DFEI  
2354 Fairchild Dr Ste 4K29  
USAF Academy, CO 80840-6200

Subject:

1. The Institute for Information Technology Applications (IITA) staff has reviewed your research proposal entitled ("Project Name"). We have determined that your proposal has merit and competitively falls within IITA's research goals. We are forwarding your research proposal to our external Proposal Review Committee for further review. Please note that this positive initial response to the proposal does not guarantee funding, but rather means that the proposal has passed an important first stage in the review process.
2. Please review comments from the IITA staff that appear below. We will forward your proposal to our Proposal Review Committee at the close of business on (current date plus 7 days). We encourage you to consider these comments carefully. If you believe that you can strengthen your proposal before we forward it to the Proposal Review Committee, please let me know and then forward a substitute narrative before (current date plus 7 days).
  - a. Comment 1
  - b. Comment 2
  - c. Comment 3
3. Thank you for your proposal and please accept our congratulations for making it past the first review stage with your competitive proposal submission.

JAMES T. HARPER, Lt Col, USAF  
Managing Director,  
Institute for Information  
Technology Applications



### **Attachment 3: Sample Final Response to Researcher**

DATE

MEMORANDUM FOR

FROM: HQ USAFA/DFEI  
2354 Fairchild Dr Ste 4K29  
USAF Academy, CO 80840-6200

Subject:

1. The purpose of this memorandum is to notify you that your research proposal entitled ("Project Name") has been approved. Your approved budget is \$XXXX.XX. Reviewer comments and specific conditions for support are attached.
2. Your proposal is assigned research code 2005-XXX. (IITA Research Advisor's Name and phone number) will be your IITA Research Advisor and will assist with milestones and funding issues. TDY requests, Form 9's, ITNSS and Government Purchase Card purchases must be coordinated with your Research Advisor. All funding changes or re-budgeting of line items must be approved in writing and in advance by your Research Advisor. During the research, should you require an increase in grant money, please submit a short memo justifying the funds. In addition, should you find that you will not require the entire amount of approved funds, please let your Research Advisor know. This will give IITA adequate time to fund additional research before established FY deadlines.
3. IITA requires a written report within 60 days of completion of the research activities. IITA may elect to publish your report on its public web site. We strongly encourage presentation of your work at professional conferences and briefings. Please advise your Research Advisor when you or your collaborators present this research. Additionally, Principle Investigators are expected to submit their IITA-sponsored work to the appropriate peer-reviewed publication. In some instances, a waiver from this requirement may be obtained from the IITA Research Advisor.
4. Thank you for your proposal. Congratulations in your selection as an IITA researcher. We look forward to working with you and helping you as you undertake this important IT application research effort.

JAMES T. HARPER, Lt Col, USAF  
Managing Director  
Institute for Information Technology  
Applications

Attach

- 1
- 2

## Attachment 4: Proposal Format Template

Proposal Submission Date:
---------------------------

### IITA RESEARCH PROPOSAL COVER PAGE

<b>Title of Proposed Project</b>			
<b>Principal Investigator</b> <i>(include title/rank and contact information)</i>			
<b>Co-Investigators</b> <i>(include title/rank and contact information)</i>			
<b>Number of Cadet Researchers:</b>		<b>Number of Cadet Research Subjects:</b>	
<b>Requested Dollar Amount:</b>		<b>Reserve Day Request:</b>	
<b>Cash Cost-Sharing:</b>		<b>In-Kind Cost-Sharing:</b>	
<b>Proposed Starting Date:</b>		<b>Proposed Duration:</b>	
<b>Other organizations to which this proposal has been or will be submitted:</b>			
<b>Proposal Summary</b>			
<b>Principal Investigator Signature/Date</b>			

For IITA Office Use Only:		PRC Recommendation:		
Date Received:		Date Submitted to IITA Director:		
IITA Staff Review:		Final Action:		
Date Submitted to PRC:				

**Your proposal should include the cover page shown previously. You must then respond to the following elements. It is not necessary to follow the outline sequentially – it is more important to make a strong case for your project in whatever logical order you deem appropriate, so long as the elements below appear in your narrative.**

**Project Information:** Describe the information technology application research you wish to perform. This section should outline the problem or question you wish to research. Research questions must be connected to prior literature, and proposals must demonstrate sufficient grounding in the relevant literature of related disciplines. Proposals must have realistic prospects for contributing to applicable information technology literature. Please provide a literature review to document current knowledge in the field, and discuss how your research will expand this knowledge base. Describe how your research will help advance the mission of USAFA, the USAF, and/or the DoD.

**Research Objectives:** Provide a well-defined list of the research objectives, hypotheses that you plan to test and/or questions you plan to address. If your proposal seeks to design new tools, a design discussion will take the place of a discussion of hypotheses or research questions.

**Research Design and Assessment Strategy:** Provide an overview of the research design and why it is appropriate for the questions you are addressing. Explain your data collection methods, data analysis and, where appropriate, how you will assess the impact and/or the effectiveness of your information technology application.

**Researcher Qualifications:** Please provide a paragraph on the personal qualifications of each researcher to perform the project described, including academic background and research history. List previous related research grants and provide a summary of completed work as applicable. Any prior IITA support and reports must be identified.

**Cadet Involvement:** IITA encourages cadet involvement during your research. Explain how cadets will be involved in performing the research.

**Cadet Involvement as Research Subjects:** Explain how cadets will be used as human subjects. Using cadets as human subjects for the research project is not the same as having them actively participate in the carrying out of the research itself. The use of cadets as human subjects requires the prior approval of the Institutional Review Board (IRB).

**IITA Laboratory requirements:** The IITA lab is located in 4J15, Fairchild Hall, and is available to all researchers as required. It is currently equipped with both UNIX and NT servers, workstations, printer, scanner, and audio-visual equipment and can be reconfigured to meet varying research needs. Use of the IITA lab is encouraged. Please outline your lab requirements. Questions regarding available resources should be directed to the IITA Lab Director.

**Budget:** A sample spreadsheet is located at ([Appendix 1](#) of Attachment 4). This budget form must equal your IITA request. If a grant is issued, this form will be used to define

expenditure categories. You may receive an executable Microsoft Excel form via e-mail by contacting the Managing Director of IITA. As appropriate, fill in the blocks that are in yellow. The red blocks are calculations based on what you put in the yellow blocks. If you need to expand the spreadsheet with another line, simply add the line with the “Insert” feature.

**Conferences and Workshops** as appropriate, IITA will host conferences and workshops. Your proposal must include information on the conferences and workshops that you wish IITA to host.

**Management Plan.** Include a management plan and milestone chart. Your management plan must indicate who will conduct each part of your work. (Please note: if your project involves cadets as researchers, you must secure approval from the Institutional Review Board (IRB) before you can begin project activities. IRB approval is not required prior to proposal submission. If you have already sought approval, please attach a copy of the IRB approval letter. For information on the USAFA IRB and to determine if you need to apply, please see their web site at <http://www.usafa.af.mil/irb>. Your milestone chart needs to show your plan to complete each step of your research. Your milestone chart must start with your initial research and conclude with publication of your finding. Multi-year projects can be broken down into quarters. One year projects must be broken down into months. Use Microsoft Excel, Microsoft Project, or an equivalent product for your milestone chart. An example of a milestone chart can be found at ([Appendix 2](#) of Attachment 4).

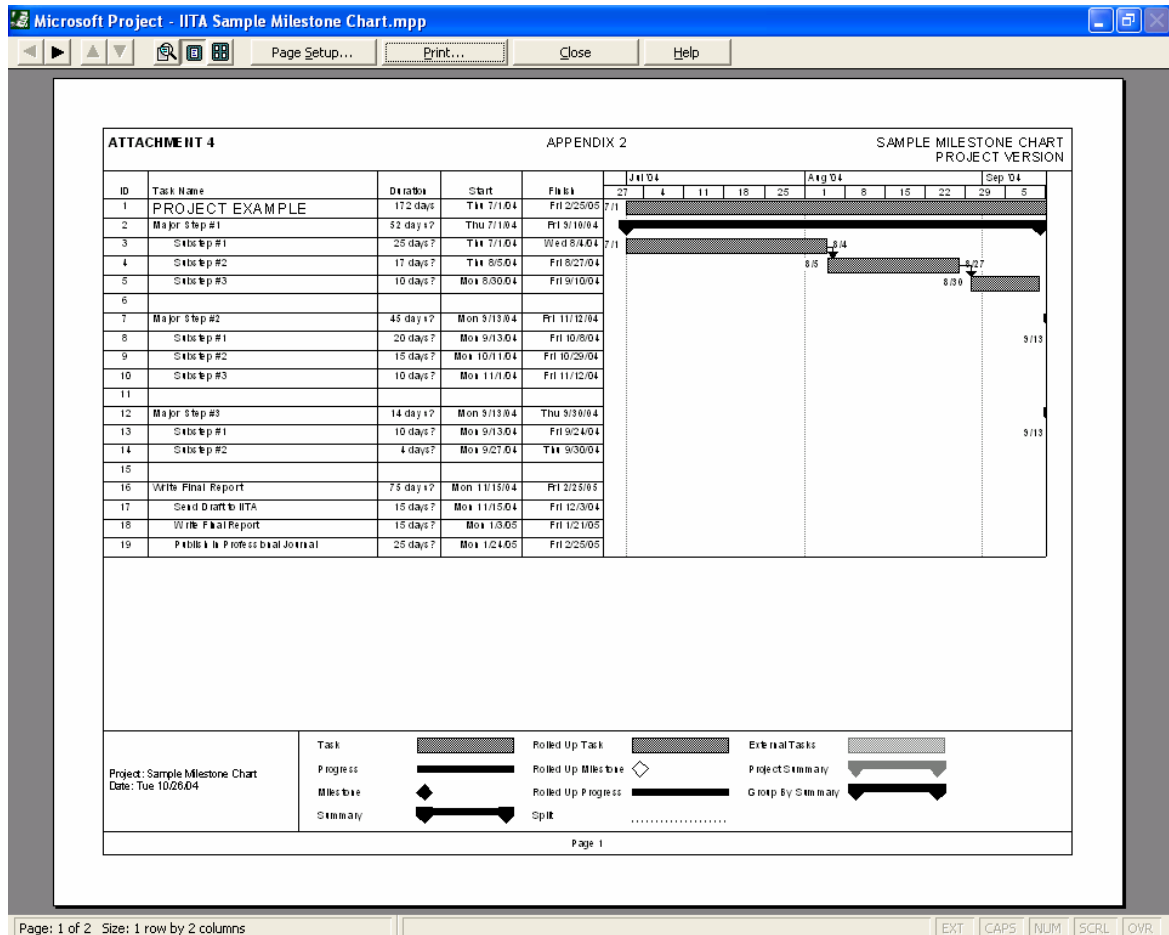
## Attachment 4 - Appendix 1: Sample Budget Spreadsheet

### Sample Budget Spreadsheet

										YEAR		1			
<b>FOR IITA USE ONLY</b>															
ORGANIZATION										PROPOSAL NO.		DURATION (MONTHS)			
<b>USAFA/Department of Computer Science</b>															
PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR										AWARD NO.					
<b>Dr. Cathy K. Jones</b>															
A.1. SENIOR PERSONNEL: PI/PD, Co-PI'S, Faculty and Other Senior Associates List each person separately with title										IITA Funded Person-hours		Total Funds Requested By Principle Investigator		Funds Obtained From Other Sources	
	First Name	M	Last Name	Title/ Rank		Hours	Salary/ Hour								
1.	Jon	A	Smith	Maj		500.00	0.00								
2.	Amanda	T	Bethards	Civ		300.00	100.00								
3.															
TOTAL SENIOR PERSONNEL															
A.2. RESERVISTS AND GUARDSMAN															
	First Name	M	Last Name	Rank	Man-Days										
1.	Tony	A	Adams	Capt	5										
2.															
3.															
TOTAL MAN-DAYS															
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)										Number		Hours		Salary/ Hour	
1. POST DOCTORAL ASSOCIATES						2		10.00		10.00					
2. OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)						0									
3. GRADUATE STUDENTS						0									
4. UNDERGRADUATE STUDENTS						0									
5. SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)						0									
6. OTHER						0									
TOTAL SALARIES AND WAGES (A+B)															
C. REQUIRED EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM)															
ITEM		QUANTITY		COST/ITEM											
Computer		5		\$900.00											
TOTAL EQUIPMENT															
D. TRAVEL															
LOCATION		AIRFARE		PER DIEM AND OTHER EXPENSES											
San Antonio, TX		\$300.00		\$500.00											
TOTAL TRAVEL															
E. PARTICIPANT SUPPORT COSTS (DESCRIBE ON SEPARATE PAGE)															
1. STIPENDS						\$300									
2. TRAVEL						\$0									
3. SUBSISTENCE						\$0									
4. OTHER						\$0									
TOTAL COST FOR RESEARCH PARTICIPANTS															
F. OTHER DIRECT COSTS															
1. MATERIALS AND SUPPLIES															
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION															
3. CONSULTANT SERVICES															
4. COMPUTERS SERVICES															
5. SUB AWARDS															
6. OTHER															
TOTAL OTHER DIRECT COSTS															
G. TOTAL DIRECT COSTS (A THROUGH F)															
H. FUNDS PROVIDED BY OTHER SOURCES (PLEASE DESCRIBE SOURCES OF ADDITIONAL MONEY)															
I. TOTAL AMOUNT OF THIS REQUEST															
J. TOTAL MAN-DAYS IN THIS REQUEST															
PI/PD NAME				DATE		FOR IITA USE ONLY				Initials					
ORG. REP. NAME				DATE		Date Received		Date Approved							

## Attachment 4 – Appendix 2: Sample Milestone Chart

### Sample Milestone Chart (Microsoft Project Format)



## Attachment 4 – Appendix 3: Sample Milestone Chart

### Sample Milestone Chart (MicroSoft Excel Format)

<b><u>Task Name</u></b>	<b><u>Duration</u></b>	<b><u>Start</u></b>	<b><u>Finish</u></b>
PROJECT NAME	172 days	7/1/2004	2/25/2005
Major Step #1	52 days	7/1/2004	9/10/2004
Substep #1	25 days	7/1/2004	8/4/2004
Substep #2	17 days	8/5/2004	8/27/2004
Substep #3	10 days	8/30/2004	9/10/2004
Major Step #2	45 days	9/13/2004	11/12/2004
Substep #1	20 days	9/13/2004	10/8/2004
Substep #2	15 days	10/11/2004	10/29/2004
Substep #3	10 days	11/1/2004	11/12/2004
Major Step #3	14 days	9/13/2004	9/30/2004
Substep #1	10 days	9/13/2004	9/24/2004
Substep #2	4 days	9/27/2004	9/30/2004
Write Final Report	75 days	11/15/2004	2/25/2005
Send Draft to IITA	15 days	11/15/2004	12/3/2004
Write Final Report	15 days	1/3/2005	1/21/2005
Publish in Professional Journal	25 days	1/24/2005	2/25/2005

## Attachment 5: IITA Research Award Selection Process

